

Claims

- [1] An antenna system monitor of a base station, comprising:
a radio communication module for receiving radio data including a first measurement value and a second measurement value of the antenna system of the base station;
a message parser for parsing the radio data to parse a base station identifier and measurement information;
a base station information database for storing identifiers of base stations to be monitored, and status information of the base stations;
a base station monitor for using the first and second measurement values to calculate factors of the base stations; and
a measured result modifier for using status information of the base station information database corresponding to the base station identifier and modifying the calculated factors.
- [2] The antenna system monitor of claim 1, wherein the first measurement value is a power of a progressive wave and the second measurement value is a power of a reflected wave.
- [3] The antenna system monitor of claim 2, wherein the factor of the base station includes a transmitted voltage standing wave ratio (VSWR) and a received VSWR.
- [4] The antenna system monitor of claim 3, wherein the radio data include a plurality of first measurement values and second measurement values, information on a number of measurement times, information on an order of measurements, and a caller number.
- [5] The antenna system monitor of claim 4, wherein the base station monitor comprises:
a VSWR calculator for using the respective first measurement value and second measurement value to calculate a VSWR;
a data storage unit for storing the calculated VSWR;
a counter for controlling a calculation number of the VSWR; and
a final VSWR calculator for outputting a final VSWR modified by the measured result modifier.
- [6] The antenna system monitor of claim 5, wherein the measured result modifier comprises:

- a maximum/minimum eliminator for eliminating a maximum value and a minimum value from among the stored VSWRs; and
an average calculator for calculating an average of the VSWRs.
- [7] The antenna system monitor of claim 6, wherein the measured result modifier further comprises:
a superimposed value searcher for searching for a superimposed value from among the VSWRs; and
a weight assignor for assigning a weight to the maximum superimposed value according to a result provided by the superimposed value searcher.
- [8] The antenna system monitor of claim 7, wherein the measured result modifier uses base station information stored in the base station information database to increase or decrease the calculated averaged VSWR to thus perform modification.
- [9] The antenna system monitor of one of claims 1 to 8, further comprising:
a display for displaying the calculated final VSWR;
a communication interface for transmitting the calculated final VSWR to an external device; and
an alarm unit for generating an alarm signal when the final VSWR is greater than a predetermined threshold value.
- [10] An antenna system measurer being installed in a plurality of base stations, measuring an antenna system of each base station, and reporting measured information to a monitoring server, the antenna system measurer comprising:
a first measurer for measuring a first measurement value of the antenna system;
a second measurer for measuring a second measurement value of the antenna system;
a radio data module for transmitting the first measurement value and the second measurement value in a radio data format; and
a controller for controlling a number of measurement times of the first measurement value and the second measurement value and radio data transmission.
- [11] The antenna system measurer of claim 10, wherein the first measurement value is a power of a progressive wave, and the second measurement value is a power of a reflected wave.
- [12] The antenna system measurer of claim 11, wherein the antenna measurer further comprises a frequency converter for converting a frequency of the second

measurement value,

the radio data module outputs a frequency of a predetermined power to a receive antenna when receiving an instruction for measuring the receive antenna, and the controller controls the frequency converter to convert a frequency of a power signal reflected from the receive antenna.

- [13] The antenna system measurer of one of claims 10 to 12, wherein the radio data include a short message service (SMS) message.
- [14] A method for measuring and monitoring an antenna system of a base station in a mobile communication system, comprising:
using an antenna system measurer installed in a base station antenna and measuring a power of a progressive wave and a power of a reflected wave;
transmitting information including measurement values and measurement times of the progressive wave and the reflected wave and base station identifiers in a radio data format to a monitoring server;
allowing the monitoring server to receive the radio data, parse the message, and search information on the corresponding base station from a base station information database;
using the transmitted measurement values to calculate a voltage standing wave ratio (VSWR) of the base station; and
modifying the calculated VSWR according to searched base station information when modification is needed.
- [15] The method of claim 14, wherein calculating the VSWR includes:
eliminating a maximum value and a minimum value from among the calculated VSWRs; and
calculating an average of the VSWRs without the maximum value and the minimum value.
- [16] The method of claim 15, wherein calculating the VSWR includes:
searching superimposed values from among the VSWRs; and
assigning a weight to a VSWR corresponding to the superimposed value.